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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,357	03/18/2002	David Coates	MERCK 2391	9084
23599	7590	10/24/2003	EXAMINER	
MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			CHOWDHURY, TARIFUR RASHID	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/088,357	COATES ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tarifur R Chowdhury	2871	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:  
    1. ☐ Certified copies of the priority documents have been received.  
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
    3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |                                                                                                        |                                                                             |
|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                            | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other:                                          |

***Specification***

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Objections***

3. Claim 16 is objected to because of the following informalities: In claim 16, line 3, "later" should be changed to --layer--. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: O plate retarder, low tilt A plate retarder and negative C plate retarder.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**8. Claims 1-7 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koch et al., (Koch), USPAT 5,619,352 in view of Chung et al., (Chung), USPAT 5,995,184.**

9. Koch discloses and shows in Fig. 11, a liquid crystal display device comprising:

- a liquid crystal cell formed by two transparent substrates (340, 345) having surfaces which oppose each other, electrode layer (325, 330) provided on the inside of the substrates and superposed with alignment layers (not shown), and a liquid crystal medium (1110) which is present between the two transparent substrates;
  - a pair of polarizers (1105, 1115) arranged outside the transparent substrates;
- and
- at least one optical compensator (1100) between the polarizer (1105) and the substrates (340).

Koch further discloses (col. 12, lines 41- col. 13, line 4) that the optical

compensator (1100) comprising:

- at least one O plate retarder;
- at least one A plate retarder; and
- at least one negative C plate retarder.

The only difference between the claimed invention and Koch is that Koch does not explicitly disclose that the A plate retarder is a low tilt A plate retarder and comprise a linear or cross-linked polymerized liquid crystalline material.

Chung discloses a low tilt (0-25 degrees) (overlaps the range of claim 5) A plate retarder that comprises polymerizable liquid crystalline material (col. 4, lines 26-29). Chung also discloses that such retarders are advantageous since it improves viewing angle and contrast of a display (col. 2, lines 46-49).

Chung is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use a low tilt A plate retarder comprising polymerizable liquid crystalline material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the A plate retarder of Koch with a low tilt A plate retarder that comprises polymerizable liquid crystalline material and having a thickness of 1.0  $\mu\text{m}$  (overlaps the range of claim 7) so that a display with improved viewing angle and contrast is obtained, as per the teachings of Chung.

Accordingly, claims 1, 5, 7, 11 and 16 would have been obvious.

As to claim 2, Koch discloses (claim 8) that the compensator comprises one or more C plates.

As to claim 3, Koch also discloses that the location of O plate retarder is purely a design choice and is generally, based on the optical requirements of the display (col. 12, lines 55-57) and thus it would have been obvious to have the C plate between the O plate and the A plate.

As to claim 4, Koch discloses that the average tilt angle of the O plate retarder is 20 – 80 degrees (overlaps the claimed range) (col. 12, lines 49-50).

As to claim 6, Koch further shows in Fig. 12 that the tilt angle in the O plate retarder varies monotonously in a direction perpendicular to the plane of the film from a minimum value at one surface of the film to a maximum value at the opposite surface of the film.

As to claim 10, Koch also discloses (col. 12, lines 42-46) that the O plate retarder comprises a linear or cross-linked polymerizable liquid crystalline material with tilted or splayed structure.

As to claim 12, Koch also discloses (col. 7, lines 33-41) that the C plate is a negatively birefringent polymer film.

As to claim 13, it is common and known in the art to fabricate a C plate by the use of either uniaxially compressed polymers or casting acetate cellulose and thus would have been obvious to avail a proven technique to form a C plate.

As to claims 14 and 15, using a C plate that comprises a linear or cross-linked polymerized chiral liquid crystalline material with a helically twisted structure wherein the helical pitch of the material is less than 250 nm is common and known in the art and thus would have been obvious to avail a proven C plate.

**10. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koch in view of Chung as applied to claims 1-7 and 10-16 above and further in view of Skarohlid, USPAT 6,266,114.**

11. Koch and Chung fail to explicitly disclose the optical retardation of the O plate and the A plate. However, as evidenced by Skarohlid (col. 2, lines 59-61) a O plate retarder having optical retardation of +70 to +140 nm and an A plate retarder having optical retardation of +30 to +180 nm (col. 3, lines 24-25) are known and commercially available and thus would have been obvious to avail a proven O plate retarder and an A plate retarder having optical retardation in the range of +70 - +140 nm (overlaps the claimed range) and +30 to +180 nm (overlaps the claimed range) respectively.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

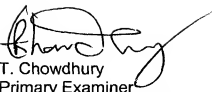
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Application/Control Number: 10/088,357  
Art Unit: 2871

Page 7

TRC  
October 15, 2003



T. Chowdhury  
Primary Examiner  
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